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In this issue...

Todd Stern in Peru, ESTH Outreach

In addition to the visit of Todd Stern, Special Envoy for Climate Change, and the meetings held with different stakeholders involved in climate change issues, the week also featured an event about mercury in artisanal mining and a USAID meeting about solid waste management.

Special Envoy Todd Stern visited Peru to reinforce United States desire to work with Peru, a constructive voice in the UNFCCC negotiations, on a bilateral, regional, and global level to find solutions to the urgent climate challenge. Peru is a member of the progressive "like-minded Latins" group in the UN climate negotiations and, in addition to associating itself with the Copenhagen Accord, Peru also submitted a list of domestic actions it plans to take, including reaching net zero deforestation by 2021. While in Peru, Stern met with several key government officials, including President Garcia and the Minister of Environment Brack, to discuss how to advance in the UNFCCC context and also how we might deepen our climate cooperation. He also held a university outreach session, attended by about 300 students, NGOs, and community members and had a meeting with a number of key NGO representatives to discuss climate issues in Peru.

President Alan Garcia met Todd Stern . Photos: PAS Lima-Peru.

Complementing this successful visit, the GOP (Ministry of Environment), announced this week an ambitious program for Forestry Conservation for Mitigation Activities for Climate Change that will aim to manage and conserve 54 million hectares of tropical forests as a contribution to mitigation against climate change and sustainable development over a 10 year period. Environment Minister Brack announced that they have committed S/.15 million soles (about $5.3 million dollars) to the program, have already received support of $10 million from the German Cooperation and are currently negotiating $40 million from Japanese cooperation. Altogether, Minister Brack noted that they should be getting close to $150 million for this program over the 10 year period. The program involves a number of activities including training, community involvement, agro-forestry, ecotourism and environmental services for local stakeholders with direct program support. The main goal for Peru is to protect its forests and use conservation as a leveraging tool for Climate Change using financing available for countries supportive of the Copenhagen framework.

Artisanal mining is a major concern for Peru, especially in Madre de Dios, impacted severely by artisanal gold mining and where deforestation has been massive. It is estimated that artisanal gold mining produces 12-15% of national gold production in Peru and just in Madre de Dios it is estimated that it creates 100,000 direct and 300,000 indirect jobs with an estimated migration rate of over 800 persons per day to the area (Almost half of the current population in Madre de Dios are now immigrants).

The Ministry of Environment has been actively pursuing actions and regulations to formalize and control this activity. These actions include creating a list of miners for the region (so that everyone knows who is mining in the area), setting up specific areas where the mining activities will be allowed, use the judicial power and the Peruvian Navy to seize and sanction dredges used in illegal mining activities in the area. It is a long term issue and there are some political issues involved (a number of political candidates are involved with informal mining activities), yet the GOP is trying to implement national regulations that will supersede regional ones to control this activity. It is expected also that some support will be provided from international cooperation to seek alternative and better management practices for mercury which will include process improvements for making retorts and working with miners on best practices for mercury reuse and educational campaigns to raise awareness on the environmental and health impacts of mercury in the area.

Todd Stern held a university outreach session. Here with Minister Brack and Agrarian University Rector Rodolfo Muñante.

Along with the Ministry of Environment and the Ministry of Economy and Finance, USAID Peru has been working on a certification program to create project profiles for solid waste management initiatives at the local and regional government level. According to Peruvian law, local governments, municipalities, and regional governments are in charge of managing solid waste management, yet few of these have been prepared to create project profiles for solid waste management (most of these small $40 thousand dollar projects over a 12 to 18 month period). This certificate program seeks to fill that vacuum training local technical authorities in project profiling so that these can be presented for public funding. The program started in 2007 and after 1,400 training events for 70,000 participants nationwide, as of now there are 89 project profiles funded in 21 regions in Peru involving 4.79 million people with direct benefit.

The impact of the program is tremendous and incremental as eventually the local technical authorities will become trainers for new project analysts and the concept can easily be extended to other environmentally related projects. The training is both on project profiling and pre feasibility studies with support of experts from the Ministry of Environment and the Ministry of Economy and Finance so that these local authorities can present well sounded projects that can be approved by the national system that filters public investments in the country. This is key, as you have a number of local municipalities, regional, and sub regional governments that have a lot of money because of the decentralization process underway in the country and are now in a strong position to self fund these small project initiatives for their local communities. This great program can easily be extended nationally as well as regionally into other South American countries that can take advantage of lessons learned and technology transfer from this initiative as they try to implement similar endeavors to empower local municipal governments and authorities across the region to better manage solid waste not only for health reasons but also to reduce the impact of climate change.

Central Amazon: Staggering Tree Loss from 2005 Thunderstorm

While storms have long been recognized as a cause of Amazon tree loss, this study is the first to produce an actual body count. And, the losses are much greater than previously suspected, the study's authors say. This suggests that storms may play a larger role in the dynamics of Amazon forests than previously recognized, they add.

Previous research had attributed a peak in tree mortality in 2005 solely to a severe drought that affected parts of the forest. The new study says that a single squall line (a long line of severe thunderstorms, the kind associated with lightening and heavy rainfall) had an important role in the tree demise. This type of storm might become more frequent in the future in the Amazon due to climate change, killing a higher number of trees and releasing more carbon to the atmosphere.

Tropical thunderstorms have long been suspected to wreak havoc in the Amazon, but this is the first time researchers have calculated how many trees a single thunderstorm can kill, says Jeffrey Chambers, a forest ecologist at Tulane University, in New Orleans, and one of the authors of the paper, which has been accepted for publication in *Geophysical Research Letters*, a journal of the American Geophysical Union (AGU).

In 2005, there was a spike in tree mortality in the Amazon. Previous studies by a coauthor of this new paper, Niro Higuchi of Brazil's National Institute for Amazon Research (INPA), showed the second largest upsurge recorded since 1989 for the Manaus region. Also in 2005, large parts of the Amazon forest experienced one of the harshest droughts in the last century. A study published in the journal *Science* in 2009 pointed at the drought as the single agent for a basin-wide increase in tree mortality. But a very large area with major tree loss (the region near Manaus, in the Central Amazon) was not affected by the drought. "We can't attribute [the increased] mortality to just drought in certain parts of the basin -- we have solid evidence that there was a strong storm that killed a lot of trees over a large part of the Amazon," Chambers says.

From January 16 to January 18, 2005, a squall line 1,000 kilometers (620 miles) long and 200 kilometers (124 miles) wide crossed the whole Amazon basin from southwest to northeast, causing several human deaths in the cities of Manaus, Manacaparu and Santarem. The storm's associated strong vertical winds, with speeds of up to 145 km/hour (90 mi/hour), uprooted or snapped in half trees that were in their path. In many cases, the stricken trees took down some of their neighbors when they fell.

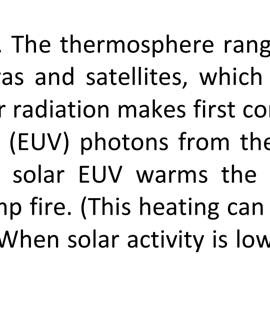
The researchers used a combination of Landsat satellite images, field-measured tree mortality, and modeling to determine the number of trees killed by the storm. By linking satellite data to field observations, the researchers were able to take into account smaller tree blowdowns (less than 10 trees) that otherwise cannot be detected through satellite images. Looking at satellite images for the area of Manaus from before and after the storm, the researchers detected changes in the reflectivity of the forest that they suspected are indicative of tree losses. Undisturbed forest patches appear as closed, green canopy in satellite images. When trees die and fall, a clearing opens, exposing wood, dead vegetation, and surface litter. This so-called "woody signal" only lasts for about a year in the Amazon; the time it takes for vegetation to re-grow and cover the exposed wood and soil. Thus, the signal is a good indicator of recent tree deaths.

Read more at http://www.sciencedaily.com/releases/2010/07/100712115108.htm

A Puzzling Collapse of Earth's Upper Atmosphere

By Dr. Tony Phillips

NASA-funded researchers are monitoring a big event in our planet's atmosphere. High above Earth's surface where the atmosphere meets space, a rarefied layer of gas called "the thermosphere" recently collapsed and now is rebounding again.



Credit: Science@NASA

"This is the biggest contraction of the thermosphere in at least 43 years," says John Emmert of the Naval Research Lab, lead author of a paper announcing the finding in the June 19th issue of the *Geophysical Research Letters* (GRL). "It's a Space Age record." The collapse happened during the deep solar minimum of 2008-2009—a fact which comes as little surprise to researchers. The thermosphere always cools and contracts when solar activity is low. In this case, however, the magnitude of the collapse was two to three times greater than low solar activity could explain.

"Something is going on that we do not understand," says Emmert. The thermosphere ranges in altitude from 90 km to 600+ km. It is a realm of meteors, auroras and satellites, which skim through the thermosphere as they circle Earth. It is also where solar radiation makes first contact with our planet. The thermosphere intercepts extreme ultraviolet (EUV) photons from the sun before they can reach the ground. When solar activity is high, solar EUV warms the thermosphere, causing it to puff up like a marshmallow held over a camp fire. (This heating can raise temperatures as high as 1400 K—hence the name *thermo*sphere.) When solar activity is low, the opposite happens.

Lately, solar activity has been very low. In 2008 and 2009, the sun plunged into a century-class solar minimum. Sunspots were scarce, solar flares almost non-existent, and solar EUV radiation was at a low ebb. Researchers immediately turned their attention to the thermosphere to see what would happen.

How do you know what's happening all the way up in the thermosphere? Emmert uses a clever technique: Because satellites feel aerodynamic drag when they move through the thermosphere, it is possible to monitor conditions there by watching satellites decay. He analyzed the decay rates of more than 5000 satellites ranging in altitude between 200 and 600 km and ranging in time between 1967 and 2010. This provided a unique space-time sampling of thermospheric density, temperature, and pressure covering almost the entire Space Age. In this way he discovered that the thermospheric collapse of 2008-2009 was not only bigger than any previous collapse, but also bigger than the sun alone could explain. One possible explanation is carbon dioxide (CO_2).

When carbon dioxide gets into the thermosphere, it acts as a coolant, shedding heat via infrared radiation. It is widely-known that CO_2 levels have been increasing in Earth's atmosphere. Extra CO_2 in the thermosphere could have magnified the cooling action of solar minimum. "But the numbers don't quite add up," says Emmert. "Even when we take CO_2 into account using our best understanding of how it operates as a coolant, we cannot fully explain the thermosphere's collapse." According to Emmert and colleagues, low solar EUV accounts for about 30% of the collapse. Extra CO_2 accounts for at least another 10%. That leaves as much as 60% unaccounted for.

Read more at http://science.nasa.gov/science-news/science-at-nasa/2010/15jul_thermosphere/

Can Chile's Glaciers Be Saved?

By Ricardo Pommer

Tyndall Glacier, Chile (NASA, International Space Station Science, 11/22/07)

A team of Chilean and German scientists this month reported a record rate of the rise of the earth's crust in Chile's Campos de Hielo Sur (Southern Ice Fields) in the extreme southern end of the country.

This rise is a direct result of the melting glaciers, said the scientists. The absence of the weight of the glaciers pressing down on the earth's crust resulted in this elevation, termed an isostatic rise. The current rate of rise is 39 millimeters a year, higher than any other region measured to date. The new data is a result of a joint measuring effort undertaken with NASA, using its satellite positioning systems.

Isostatic rises, said the scientists, are also occurring in the glaciers found in neighboring Peru and Argentina.

In Peru, a seemingly odd but scientifically sound enterprise has taken shape to save a local glacier. Eduardo Gold received US$200,000 from the World Bank to restore glaciers in the Chalon Sombrero area, where a now completely extinct glacier once sheltered the small village of Licapa. Gold plans to paint 70 hectares with a mixture of egg white, water and lime in an effort to lower the temperature of the area (by reflecting light) and thus create conditions for the glacier's return.

Although some officials and scientists argue that project's like this only bring about change on a local scale, a 2009 report by the UK's Royal Society views the project as a viable solution to localized, endangered areas.

In Argentina, a broader glacier initiative is being pushed at the legislative level. A recent Chamber of Deputies law establishes glaciers as "strategic water reserves" and "public property." The law also protects glaciers by forbidding mining and oil extraction activities near them.

The bill has yet to be ratified by Argentina's Senate and mining interests are expected to lobby for changes in the legislation.

Read more at http://www.santiagotimes.cl/index.php?option=com_content&view=article&id=19375:can-chiles-glaciers-be-saved&catid=44:environmental&Itemid=40

Brazil: Hundreds of dead penguins washed up on Brazilian beaches

Scientists are still investigating what could have caused the death of around 530 penguins, other sea birds, dolphins and three giant turtles found on the shores of coastal towns of Peruibe, Praia Grande and Itanhaem.

Magellanic penguin.

They say autopsies carried out on some of the penguin carcasses suggest they could have starved to death, as their stomachs were completely empty. They are now trying to establish if strong currents and colder temperatures may be to blame.

Thiago do Nascimento of the Peruibe Aquarium says the cooler than usual temperatures off the coast could have driven away the fish and squid the penguins feed on. But he did not rule out that over-fishing could have decimated the penguins' food sources.

Penguins migrate from the south of Argentina and Chile along the South American continent to the Brazilian coast. Mr. Nascimento said between 100 and 150 penguins showed up on the beaches every year, but that they were normally alive, with only around 10 washed up dead in an average year. "What worries us this year is the absurdly high number of penguins that have appeared dead in a short period of time," he told the *Associated Press* news agency. The Praia Grande authorities have ruled out pollution as the cause.

Read more at http://en.mercopress.com/2010/07/21/hundreds-of-dead-penguins-washed-up-on-brazilian-beaches

Governments make major advances on global agreement on genetic resources

Following seven days of intense and complex negotiations, and with the financial support of Japan, the world's governments have made major breakthroughs on a text of a legally binding protocol on access to, and sharing of, the benefits from the use of the rich genetic resources of our planet. The draft Aichi Nagoya Protocol on Access and Benefit-Sharing (ABS) is now in place, and will be finalized and adopted on 29 October 2010 at the tenth meeting of the Conference of the Parties (COP 10) to the Convention on Biological Diversity (CBD). "History will recall that the Aichi Nagoya Protocol on Access and Benefit-Sharing was born here in Montreal. Once again, the Montreal magic has worked for delivering one of the most important legal instruments in the history of the environment movement", said Ahmed Djoghlaf, Executive Secretary of the Convention.

The two Co-Chairs of the Working Group, Timothy Hodges of Canada and Fernando Casas of Colombia said: "In Montreal, we witnessed a major breakthrough in the negotiations. Progress on key issues is a giant leap toward the objective of finalizing the Protocol. While much remains to be done, we are more confident than ever that the ABS Protocol will be adopted in Nagoya, next October." Discussions during the week focused on the draft protocol text that was tabled at the beginning of the ninth meeting of the working group, which took place in Cali, Colombia, in March this year. Following this week's negotiations in Montreal, the structure of this text remains intact and consensus was reached on important elements including compliance, and user measures.

Access and benefit-sharing refers to the way genetic resources - whether plant, animal or micro-organism - are accessed in countries of origin, and how the benefits that result from their use by various research institutes, universities or private companies are shared with the people or countries that provide them. Ensuring the fair and equitable sharing of benefits from the use of genetic resources is one of the three objectives of the Convention on Biological Diversity.

In 2002, at the Johannesburg World Summit on Sustainable Development, world leaders agreed on the need for an international regime on access and benefit-sharing. The 4,000 participants attending the eighth meeting of the Conference of the Parties, held in March 2006, agreed to finalize negotiations as soon as possible and no later than 2010 at the tenth meeting of the Conference of the Parties to the CBD.

Over 10,000 participants are expected to attend the Biodiversity Summit. The high-level segment of this historic meeting will be held from 27 to 29 October 2010 and will be preceded by a high-level meeting of the United Nations General Assembly exclusively devoted to biodiversity, to be held in New York in September 2010 in conjunction with the sixty-fifth session of the General Assembly and with the participation of Heads of State and Government.

The high level event of the sixty-fifth session of the United Nations General Assembly, to be held in New York on 22 September 2010, will be an important event to accelerate the political momentum. The President-elect of the General Assembly, Mr. Joseph Deiss, was briefed on the status of negotiations by the Co-Chairs during his visit on 7 July 2010 to the headquarters of the Secretariat on the preparation of the New York summit.

Governments agreed to use the inter-sessional period before Nagoya to advance the negotiations.

Read more at http://www.mma.gov.br/sitio/en/index.php?ido=ascom.noticiaMMA&idEstrutura=8&codigo=5971

REO Hub and ESTH Outreach

July 26-27, 2010	**REO Assistant Adriana Quevedo will participate in the Roundtable on Security Planning and Policies to Meet the Challenges of Climate Change. Bogotá, Colombia.**
Ago 2-6, 2010	**REO Director Indran Amirthanayagam will address the 2010 International Meeting on Science. Lima, Peru.** www.encuentrocientificointernacional.org, http://www.worldscientists.org/
Ago 9-14, 2010	**REO Director Indran Amirthanayagam will participate in the UNEP Inception Workshop ASGM Regional Project, La Paz, Bolivia, and will carry out his orientation visit to this country.**
Ago 17-18, 2010	**Low Carbon Sustainable Economies Workshop: South American Perspectives, organized by REO, USAID, and US Southcom. Lima, Peru.**
Sept 13-24, 2010	**REO Adriana Quevedo will undertake the ESTH Tradecraft Training Programme.**
October 2010	**REO Indran Amirthanayagam will participate in HUB meeting in Washington D.C.**
Oct 4-10, 2010	**X Latin American Congress on Botany - La Serena, Chile**
Oct 11-16, 2010	**IV COBER and II ECC International Fair 2010 on Clean Technologies, and Efficient Use of Energy, organized by FONAM —Lima, Peru. Key note addressed by REO Indran Amirthanayagam** inscripciones@cober.pe, www.cober.pe

U.S. Climate Change Bills

HR 2996

Rep. Norman Dicks [D-WA6] – Dep. of the Interior, Environment, and Related Agencies Appropriations Act, 2010

Oct 30, 2009 – Became Public Law No: 111-88. Read about this law here: http://www.govtrack.us/congress/bill.xpd?bill=h111-2996

S. 1733

Sen. John Kerry [D-MA] – Clean Energy Jobs and American Power Act.

Sep 30, 2009 – Introduced (referred to Senate Environment and Public Works Committee)

Nov 5, 2009: Committee on Environment and Public Works. Ordered to be reported with an amendment in the nature of a substitute favorably.

Feb 2, 2010: Placed on Senate Legislative Calendar under General Orders.

Track this bill here: http://www.govtrack.us/congress/bill.xpd?bill=s111-1733

HR 2454

Rep. Henry Waxman [D-CA30] – American Clean Energy and Security Act of 2009.

May 15, 2009 – Introduced (referred to 15 different committees: http://www.govtrack.us/congress/bill.xpd?bill=h111-2454&tab=committees

May 21, 2009 – Reported by committee (2 proposed amendments:

http://www.govtrack.us/congress/bill.xpd?bill=h111-2454&tab=amendments)

June 26, 2009 – Passed House. Bill now goes to Senate vote.

July 7, 2009 – Read the second time. Placed on Senate Legislative Calendar under General Orders. Calendar No. 97. Track this bill here: http://www.govtrack.us/congress/bill.xpd?bill=h111-2454